What is claimed is:

1. A substantially pure DNA comprising a sequence encoding an AIB1 polypeptide.

2. The DNA of claim 1, wherein the polypeptide is human AIB1.

3. The DNA of claim 1, wherein the polypeptide comprises the amino acid sequence of SEQ. I.D. NO. 4.

4. The DNA of claim 1, wherein the polypeptide comprises the amino acid sequence of SEQ. I.D. NO. 2.

5. The DNA of claim 1, wherein the polypeptide comprises the amino acid sequence of SEQ. I.D. NO. 3.

6. The DNA of claim 1, wherein the polypeptide comprises the amino acid sequence of SEQ. I.D. NO. 8.

7. A substantially pure DNA comprising a polynucleotide which hybridizes at high stringency to a DNA having the sequence of SEQ. I.D. NO. 1, or the complement thereof.

8. A substantially pure DNA comprising a nucleotide sequence having at least 50% sequence identity to SEQ. I.D. NO. 1, the nucleotide sequence encoding a polypeptide having the biological activity of a AIB1 polypeptide.

sub a'

9. A substantially pure DNA comprising (a) the sequence of SEQ. I.D. NO. 1 or (b) a degenerate variant thereof.

10. The DNA of claim 1, wherein the DNA is operably linked to regulatory sequences for expression of the polypeptide, the regulatory sequences comprising a promoter.

11. A cell comprising the DNA of claim 1.

12. A substantially pure human AIB1 polypeptide.

sub D, 13. The polypeptide of claim 12, wherein the polypeptide comprises the amino acid sequence of SEQ. I.D. Nos. 2, 3, 4, or 8.

14. A method of identifying a candidate compound which inhibits estrogen receptor (ER)-dependent transcription comprising contacting the compound with an AIB1 polypeptide and determining whether the compound binds to the polypeptide, wherein binding of the compound to the polypeptide indicates that the compound inhibits ER-dependent transcription.

15. The method of claim 14, wherein the AIB1 polypeptide comprises a Per/Arnt/Sim (PAS) domain.

16. The method of claim 14, wherein the AIB1 polypeptide comprises a basic helix-loop-helix (bHLH) domain.

17. The method of claim 14, wherein the AIB1 polypeptide comprises an ER-interacting domain.

18. A method of identifying a candidate compound which inhibits ER-dependent transcription comprising:

contacting the compound with an AIB1 polypeptide and an ER polypeptide and determining the ability of the compound to interfere with the binding of the ER polypeptide with the AIB1 polypeptide.

19. The method of claim 18, wherein the AIB1 polypeptide comprises a PAS domain.

20. The method of claim 18, wherein the AIB1 polypeptide comprises a bHLH domain.

21. A method of screening a candidate compound which inhibits an interaction of an AIB1 polypeptide with an ER polypeptide in a cell comprising

(a) providing a GAL4 binding site linked to a reporter gene;

(b) providing a GAL4 binding domain linked to either (i) an AIB1 polypeptide or (ii) an ER polypeptide;

(c) providing a GAL4 transactivation domain II linked to the ER polypeptide if the GAL4 binding domain is linked to the AIB1 polypeptide or linked to the AIB1 polypeptide if the GAL4 binding domain is linked to the ER polypeptide;

(d) contacting the cell with the compound; and

(e) monitoring expression of the reporter gene, wherein a decrease in expression in the presence of the compound compared to that in the absence of the compound indicates that the compound inhibits an interaction of an AIB1 polypeptide with the ER polypeptide.

22. A method of detecting an aberrantly proliferating cell in a tissue sample comprising determining the level of AIB1 gene expression in the sample, wherein an increase in the level of expression compared to the level in normal control tissue indicates the presence of an aberrantly proliferating cell.

23. The method of claim 21, wherein the aberrantly proliferating cell is a steroid hormone-responsive cancer cell.

24. The method of claim 23, wherein the steroid hormone-responsive cancer cell is a breast cancer cell.

25. The method of claim 23, wherein the cell is a steroid hormone-responsive cancer cell is an ovarian cancer cell.

26. The method of claim 21, wherein the AIB1 gene expression is measured using an AIB1 gene-specific polynucleotide probe.

27. The method of claim 21, wherein the AIB1 gene expression is measured using an antibody specific for an AIB1 gene product.

28. A method of detecting breast cancer in a tissue sample, comprising determining the number of cellular copies of an AIB1 gene in the tissue sample, wherein an increase in the number of copies compared to the number of copies in a normal control tissue indicates the presence of a breast carcinoma.

29. The method of claim 28, wherein the number of copies in the tissue is greater than 2.

30. The method of claim 29, wherein the number of copies in the tissue is greater than 10.

31. The method of claim 30, wherein the number of copies in the tissue is greater than 20.

32. A method of reducing proliferation of a cancer cell in a mammal comprising administering to the mammal a compound which inhibits expression of AIB1.

33. The method of claim 32, wherein the compound reduces transcription of DNA encoding AIB1 in the cell.

34. The method of claim 32, wherein the compound reduces translation of an AIB1 mRNA into an AIB1 gene product in the cell.

35. The method of claim 34, wherein the translation is reduced by contacting the AIB1 mRNA with an antisense DNA complementary to the AIB1 mRNA.

Sub a4 36. ~~A method of inhibiting~~ ER-dependent transcription in a breast cell of an mammal, comprising administering an effective amount of an AIB1 polypeptide to the ~~mammal~~.

37. The method of claim 36, wherein the polypeptide comprises a PAS domain.

38. The method of claim 36, wherein the polypeptide comprises a bHLH domain.

39. The method of claim 36, wherein the polypeptide comprises an ER-interacting domain

Sub a5 40. ~~A method of inhibiting~~ ER-dependent transcription in a cancer cell of a mammal, comprising administering an effective amount of a peptide mimetic of an AIB1 polypeptide to the mammal.

41. A monoclonal antibody which binds specifically to AIB1.

42. A method of identifying a tamoxifen-sensitive patient, comprising

(a) contacting a patient-derived tissue sample with tamoxifen; and

(b) determining the level of AIB1 gene expression in the sample, wherein an increase in the level of expression compared to the level in normal control tissue indicates that the patient is tamoxifen-sensitive.

43. The method of claim 42, wherein the AIB1 gene expression is measured using an AIB1 gene-specific polynucleotide probe.

44. The method of claim 42, wherein the AIB1 gene expression is measured using an antibody specific for an AIB1 gene product.

45. A transgenic animal wherein at least one copy of the AIB1 gene has been functionally deleted.

46. A transgenic mouse wherein at least one copy of the pCIP gene has been functionally deleted.

47. The invention of claim 45 wherein at least one copy of the gene has been functionally deleted using a method selected from the group consisting of: anti-sense technology, transposon mutagenesis, homologous recombination with a non-functional gene homolog of AIB1.

48. A transgenic animal genetically engineered to have more than the normal copy number of the AIB1 gene.

49. The invention of claim 48 wherein at least one copy of the AIB1 gene has been introduced into the animal on an extra-chromosomal element.

50. A transgenic animal having at least one AIB1 gene operatively linked to a non-native promoter.

51. The invention of claim 50 wherein the non-native promoter is selected from the group consisting of: a mouse mammary tumor virus promoter, a whey acidic protein promoter and a metallothionein promoter.

52. The invention of claim 50 wherein transcription from the promoter has the characteristic selected from the group consisting of: being inducible, being repressible and being constitutive.

53. A method of reducing proliferation of a cancer cell comprising administering to the mammal a compound which inhibits interaction of AIB1 with a molecule selected from the group consisting of steroid receptors and nuclear co-factors.

54. The method of claim 58 wherein the molecule is selected from the group consisting of: p300 and CBP.